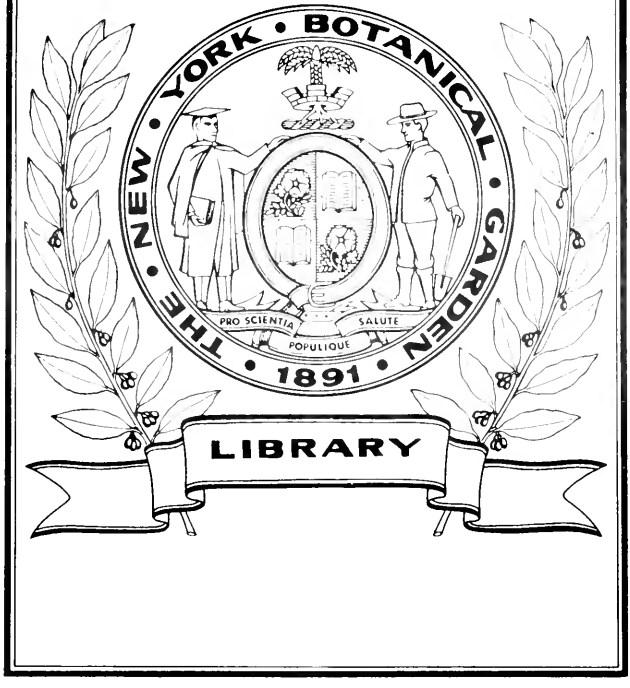
Schöpf, Johann David

Reise durch einige der mittlern und südlichen Vereinigten Nordamerkanischen Staaten nach Ost-Florida und den Bahama Inseln unternommen in den jahren 1783 und 1784



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J. U. & C. G. LLOYD
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BOTANY SERIES, No. 2

Reise
durch einige der mittlern und südlichen
Vereinigten
Nordamerikanischen Staaten
nach Ost-Florida und den Bahama Inseln
unternommen in den Jahren 1783 und 1784

von

Johann David Schöpf

Erlangen
bey Johann Jacob Palm, 1788

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Synopsis of the Genus Hexagona, by C. G. Lloyd.

No. 15. Botany Series No. 1.
Catalogue of the Ferns and Flowering Plants of Cincinnati, Ohio, and Vicinity, by W. H. Aiken.

No. 16. Botany Series, No. 2.
Reise durch einige der mittlern und sudlichen vereinigten Nordamerikanischen Staaten nach Ost-Florida und den Bahama Inseln unternommen in den Jahren 1783 und 1784, von Johann David Schopf, Erlangen, bey Johann Jacob Palm, 1788.

Bibliographical Contributions from the Lloyd Library

No. 1. Catalogue of the Periodical Literature in the Lloyd Library.

Mycological Writings of Mr. C. G. Lloyd

Mycological Notes, No. 1 to No. 36, 1898-1910.
Mycological Notes, Old Species Issue, No. 1, 1908.
Mycological Notes, Polyporoid Issue, No. 1 to No. 3, 1908-1910.
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A Compilation of the Volvae of the United States, 1898.
The Genera of the Gastromycetes, 1902.*
The Geastrae, 1902.*
The Lycoperdaceae of Australia, New Zealand, and Neighboring Islands, 1905.*
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The Phalloids of Australasia, 1907.
Synopsis of the Known Phalloids, 1909.*
Synopsis of the Genus Hexagona, 1910.*
Synopsis of the Sections Microporus, Tabacinus, and Funales of the Genus Polystictus, 1910.

* Published also as a Bulletin of the Lloyd Library of the Mycological Series.

Introduction.

Dr. Johann David Schoepf, b. Wunsiedel, Bavaria, March 8, 1752; received his degree in medicine from the University of Erlangen in 1776; appointed surgeon to the Ansbach troops, arriving at New York, June 4, 1777; for six years in the hospitals of New York, Philadelphia, and Rhode Island; d. September 10, 1800, President of the United Medical Colleges of Ansbach and Bayreuth.*

Leaving New York as soon as possible after the war, in July, 1783, Dr. Schoepf set out upon his travels to the South. After ten days in Philadelphia, he visited Bethlehem and Nazareth, and thence crossed Pennsylvania to Pittsburg, in a two-wheeled chaise. His route lay through the Wyoming Valley, by Reading, Lebanon, and Carlisle. Returning he took the southern road, to the Potomac, through Georgetown, Alexandria, Annapolis, and Baltimore. He was at Philadelphia a second time October 31, 1783. This is the region covered by his first volume.

Towards the end of November, 1783, he left Philadelphia and passed through Maryland into Virginia; from Richmond he made an excursion to Yorktown. Thence following the coast he arrived at Charleston in February. March 9, 1784, he sailed for St. Augustine, and on the 29th of that month crossed to the Bahama Islands. He set sail for England June 7, 1784.

Schoepf was the first naturalist to traverse so much of the United States during the year following the Peace of 1783. Therefore, in the extracts here given, it has been thought well to include something of his observations touching the economic aspects of the subject. Dr. Schoepf was a particularly well-informed man of science, of a wide range of interests, and it may be added that his *Beyträge zur mineralogischen Kenntnis des östlichen Theils von Nord America* is regarded as the first work on American Geology.¶ His *Travels*, a rare book, have been translated for the first time into English by Alfred J. Morrison, from the copy in the Library of Congress. These extracts have been supplied by the translator, at the request of Dr. John Uri Lloyd.

*cf. 1. Kremers, Introd., *Materia Medica Americana (Schoepf)*, Lloyd Library Bulletin. 2. Hirsch, *Biographisches Lexikon der hervorragenden Aerzte aller Zeiten und Völker*. 3. Fr. Ratzel, in *Allgem. Deutsche Biographie*. 4 Rosengarten, *The German Soldier in the Wars of the United States*, 2nd ed., pp. 91-98.

¶cf. George P. Merrill, *Contributions to the History of American Geology*, Smithsonian Institution Report (Nat. Museum) 1904, p. 208.

Pensylvania.

[I, 115-138.] Dr. **Benjamin Rush** is the Professor of Chymistry, [University of Pennsylvania Medical Faculty], and is a very favorite practicioner—a man whose agreeable manners, oratorical fluency, and flowery style abundantly recommend him to his fellow-countryman. He is the author of several opuscula of a medical nature, but also appears frequently as a political writer. Several sheets of his on the newest methods of inoculating for the smallpox and of treating that disease have appeared recently in a German translation. During the war he was for a time Physician-in-chief of the American army and frequently had occasion to observe the fatal course of lockjaw in cases of insignificant wounds, although opium was administered heavily. This led him to the opinion that the cause might be found in an extreme weakness of the body. Therefore his treatment was to administer Peruvian bark and wine, at the same time making incisions in the wound and applying a blister of Spanish fly. Results were incomparably better. He intends himself to publish, with other material, his observations and conclusions in this matter, unless publication of them is managed earlier in some other way. The idea is confirmed by comparisons made between the wounded of the two armies, British and French, after the siege of York in Virginia. Most of the wounded in the French army, but especially those of West India regiments, were attacked with the lockjaw and died, although their injuries may have been slight, whereas, in the British hospitals a fatal outcome was seldom remarked. It is a known fact that soldiers from the West Indies always show a weak state of health, and the remainder of the French troops, (having made in the height of summer a long and tedious march from New England to Virginia), must have been in a weakened condition. Lockjaw was not frequently the case at Philadelphia, and was as seldom seen at New York, among the British troops.

Some time ago an Irish woman made several fortunate cures of blood-spitting by the use of common kitchen salt. She recommended for patients suffering with this malady a teaspoonful of salt every morning, to be gradually increased to a tablespoonful several times a day. In the more positive cases of blood-spitting, several doses must be given, often repeated until the symptoms cease, which will unfailingly happen in a short time, it is claimed. Dr. Rush about thirty years ago learned of this treatment, and has made use of it since in more than thirty cases, and invariably with good results. The cure is effectual also in bleedings at the nose and in floodings, but is excellent for blood-spitting. Only in two cases was there no good effect, to-wit, with a man who was an old and incorrigible drinker, and with another who from distrust of so simple a means would not take the salt in sufficient quantity. Something similar has been long known respecting saltpetre and sal-ammoniac, but these being not so generally at hand, the practice with kitchen salt deserved mention.

The French physicians and surgeons, here as well as in the West Indies, were very much disinclined to give bark in cases of intermittent fever. The Americans were always sooner done with their patients, whereas the French showed a preference rather for enfeebling theirs to the skeleton point; finally, indeed, brought them round, but very slowly and at the risk of frequent relapses and stoppages of the bowels—sequelae of long-standing fevers very much more certain to occur if bark is not given in time. Dr. Rush learned of a quack doctor the use of blistering plasters for obstinate cold fevers or agues, and his experience convinced him of the value of the treatment. The blisters are applied to both wrists and seldom fail of effect. (Several bands about the hand have long been used by our German country people.) Dr. Rush in this way cured a Virginia doctor of a tertian which he had been dragging about for three months, and he in turn used the treatment in Virginia with good results. . . .

Dr. **Kuhn,** of German origin, is the Professor of Botany and Materia Medica. He is a disciple of the lamented Linnaeus, who named an order of plants in his honor, the *Kuhnia*—which Dr. Kuhn himself has not seen, although it exists in Pensylvania. The professorship of Botany is an empty title, since throughout the summer there is neither lecturing nor botanizing. . . .

I should tax the patience of my readers by an enumeration of all the Aesculapians and learned men of Philadelphia, where the labors of the physician are as richly rewarded as at any place. The yearly in-take of more than one of these men is reckoned at several thousand pounds Pensyl. Current. But their greatest profit arises from the private dispensation of remedies;* to which end each physician of large practice has a select stock of drugs and keeps a few young men at hand to prepare prescriptions and assist in visiting patients. By private reading or academical instruction, these young men contrive to increase their knowledge and so fit themselves for practice on their own account.

. . . Mr. **du Sumitiere,** of Geneva, a painter, is almost the only man at Philadelphia who manifests a taste for natural history. Also he possesses the only collection, a small one, of natural curiosities—and a not inconsiderable number of well-executed drawings of American birds, plants, and insects. It is to be regretted that his activities and his enthusiasm for collecting should be embarrassed by domestic circumstances, and that he should fail of positive encouragement from the American public.

* * * * *

During the first days of my stay at Philadelphia I visited among others Mr. **Bartram,** the son of the worthy and meritorious botanist (so often mentioned by Kalm) who died six years ago at a great age. Bartram the elder was merely a gardener, but by his own talents

*There are besides several apothecarys and dealers in drugs at Philadelphia—among others a German shop, where the Pennsylvania-Dutch farmer, to his great comfort, is supplied all the silly doses he has been accustomed to in the fatherland.

and industry, almost without instruction, became the first botanist in America, honored with their correspondence by Linnaeus, Collinson, and other savans. He was, to be sure, more collector than student, but by his enthusiasm and love for plants, many new ones were discovered. He made many long journeys on foot through the mountain country, through several of the provinces, and (with Kalm and Conrad Weisser) into the interior of Canada. After the Peace of 1762 when both the Floridas were apportioned to Great Britain, Bartram received a commission from the King to visit those two provinces. Contrary to his own purpose his journal was published, but Bartram should not be judged by that dry record. Whoever wishes more information regarding him may find it in Hector St. John's Sketches of American Manners. The Bartram garden is situated on an extremely pleasant slope across the Schuylkill and not far from its junction with the Delaware. An old but neat house of stone, on the river side, supported rather than adorned by several granite pillars, was the residence of this honored and contented old man. The son, the present owner of the garden, follows the employments of his father and maintains a very respectable collection of sundry North American plants, particularly trees and shrubs, the seeds and shoots of which he sends to England and France at a good profit. He is not so well known to the botanical world as was his father, but is equally deserving of recognition. When young he spent several years among the Florida Indians, and made a collection of plants in that region; his unprinted manuscript on the natives and products of that country should be instructive and interesting. In the small space of his garden there is to be found assembled really a great variety of American plants, among others, most of their vines and conifers, species of which very little is generally known. The Sarracenia and several other marsh growths do very well here in dry beds—confirmation of what I have often observed with astonishment, namely, that American plants grow anywhere, with little or no reference to the place of their origin.*

Nearer to Philadelphia, but also on the farther bank of the Schuylkill, there lives a botanist who is the equal of Bartram neither in knowledge nor spirit, although he makes more ado—Mr. **Young**, by birth a Hessian, who in a strange way has gotten to himself the title of Botanist to the Queen. His father lived at this same place, by what he could make on his bit of land; the son was frequently in Bartram's garden and found amusement in the variegated blossoms. One day (so I was told at Philadelphia) he sent to London a paquet of plants which he had collected in the garden, with a letter addressed **To the Queen.** He had placed the paquet unobserved in the bag which is usually kept open at the Coffee-house by ships shortly to clear. Arrived at London the skipper was in a quandary whether to deliver the paquet, of which he knew nothing, what it contained or

* Since my return I have seen American trees and shrubs more than once, in England and Germany, thriving on dry soils, whereas in America it had been my observation that these varieties were to be found only in swampy places.

who had sent it; but after consultation with his friends despatched it as directed. The Queen, supposing this to be an extraordinarily hopeful lad, had the youthful Young brought to London and placed under the care of the celebrated Dr. Hill. Three hundred pounds sterling was appropriated annually for his use, and after a time Young came back to America, with the title, a large peruque and a small stipend, and fulfilled none of the hopes he had aroused. Some years ago, indeed, he had printed at Paris an exhaustive catalogue of plants presumably in his garden; but I found that his garden is very extensive—if this or that plant of the catalogue is not to be found in his garden he answers with his customary bombast that all America, field and forest, is his garden.*

The taste for gardening is, at Philadelphia as well as throughout America, still in its infancy. There are not yet to be found many orderly and interesting gardens. Mr. Hamilton's, near the city, is the only one deserving special mention. Such neglect is all the more astonishing, because so many people of means spend the most part of their time in the country. Gardens as at present managed are purely utilitarian. Pleasure gardens have not yet come in, and if perspectives are wanted one must be content with those offered by the landscape, not very various, what with the still immense forests. The fruitful warmth of the climate obviates indeed very many difficulties which we have to contend with in securing garden growths—and makes careless gardeners. So long as people are content merely with the customary products of northern Europe, these may be had at small pains; but with this management the advantages are lost which would be afforded by a better, that is to say, many of the products natural to a warmer climate might be had with a little care. Most of the vegetables and flowers of northern Europe have been introduced. Many of these do well and have even been improved, but others grow worse under careless management. American gardening has nothing of the characteristic to show, beyond several varieties and dubieties of pumpkins, squashes, and gourds, the cultivation of which was usual among the Indians. Several of our vegetables were first introduced by the German troops, *e. g.*, Kohlrabi, broccoli, and the black radish. But certain of our good fruits are lacking (or at least very seldom seen, and then not the best sorts), such as, plums, apricots, wainuts, good pears, the domestic chestnut, gooseberries, and others, and for no other reason but neglect to make the proper efforts, with patience and attention—for the American cares little for what does not grow of itself, and is satisfied with the great yields of his cherry, apple, and peach trees, without giving a thought to possible and often necessary betterments. They know little or nothing of grafting, or inoculations, or use such practices very seldom. Much, without sufficient ground, is charged to the disadvantages of the climate, and people have let themselves be too easily frightened away from gardening, when the

* Recently Mr. Humphrey Marshall has made himself known by his American Grove, or alphabetical list of all North American trees and shrubs, published at Philadelphia in 8 vo. 1785. He lives in Pensylvania, in Chester County, and offers to furnish at a moderate price collections of seeds or of living plants noticed in his catalogue.

trouble was that nothing of the first quality has been produced, because of thin soil, bad seed, and unskillful cultivation.

The taste for garden flowers is likewise very restricted; however, a few florists are to be found. Dr. Glentworth, formerly a surgeon in the army, has a numerous collection of beautiful bulbs and other flowers which he maintains by yearly importations from Holland. But as a rule one finds in the gardens nothing but wild jasmine, flowergentles, globe-amaranths, hibiscus syriacus, and other common things. The beautiful gilliflower, the ranunculus, auricula, etc., of these they are little aware.

[I, 239-241.] All the hills about [Nazareth to Schöneck], as far as the eye could reach, were grown up with the bush oak (Quercus nana, Dwarf oak).* Only here and there stood a chestnut, quite alone, or one of the other oaks. We overlooked in part and in part passed through some thousands of acres of land bearing nothing but this description of oak. Their twisted and bushy stems seldom exceeded a height of three to four feet; at times we observed trees of ten to twelve feet, or even fifteen feet, but very few of them. These oaks seem to take possession of this dry and infertile hill country as if by privilege. And there is found among them besides scarcely any variety of other plants. We noticed only the *Actæa racemosa* (which we missed hardly anywhere along the whole road), the *Galega virginiana, Sophora tinctoria, Gerardia*, and a few others, along with a dry bristly grass. In the lower valleys between these hills the other oaks occur, as also the chestnut oak which is seldom seen elsewhere in this region. The land grown up in this dwarf oak is of very little value. The people living near by set fire to the bush every spring, in order to give air to the grass beneath, and so furnish their cattle a little pasture. However, the growth comes out again, although the bark is almost coaled. Fire seems to do them little hurt, whereas the chestnut and other tree-oaks stand among them dry and scorched.

[I, 347-348.] The blue magnolia or mountain magnolia (*Magnolia acuminata, Linn.*) was one of the more conspicuous trees peculiar to this mountain region [near Bedford]. They call it here the cucumber tree, because its long cones, before they ripen and open, are in shape something like that fruit. The seeds, seed-receptacles, and in less degree the bark and twigs have in common with other magnolias a very pleasant bitterness of taste, and the seeds are often used

* This bush oak was similar to that growing on Long Island and called *Qu. Ilicifolia* by Von Wangenheim Vid his *Amerikanis he Holzart n* p. 79). Marshall, in his *American Grove*, calls it Dwarf black oak (*Quercus nigra pumila*). But Marshall makes dwarf varieties of almost every kind of oak, according as it is a growth of poor, thin soil. Thus he has a Quercus alba minor, Barren white oak. Quercus rubra nana, Dwarf Barren oak. Quercus prinus humilis, Dwarf Chestnut or Chinquapin Oak. In this way there might be dwarf varieties of every sort of tree, whereas there is a lack of nourishment in the soil—and the question may still be put wherever this oak is an independent variety.

in bitter spirituous infusions. This tree is distinguished from its relatives by its habitat; it is found only in dry spots in the mountains, and bears more cold than other magnolias. The ripe-seed vessels have a pleasant odor and taste something like the calamus. The unripe fruit blackens the fingers and stains the knife.

[I. 362-363.] A man met us who was taking to Philadelphia some five hundred pounds of ginseng-roots (*Panax quinquefolium, L.*) on two horses. He hoped to make a great profit because throughout the war little of this article was gathered, and it was now demanded in quantity by certain Frenchmen. The hunters collect it incidentally in their wanderings; in these mountains the plant is still common, but in the lower parts it has pretty well disappeared. It grows in not too rich woods-earth in mountain regions from Canada down to North and South Carolina. Much is brought in to Fort Pitt. Industrious people who went out for the purpose have gathered as much as sixty pounds in one day. Three pounds of the freshly gathered make only one pound of the well dried; which is sold by the gatherers for one, one and a half, to two shillings, Pensylv. Current, commonly about a shilling sterling. The physicians in America make no use of this root; and it is an article of trade only with China, where the price is not so high as it was, on account of the great adulteration. All manner of similar roots were mixed in. The English take very little of it. The taste of the fresh root is very similar to that of our sweet-wood or liquorice, but is somewhat more aromatick. In these mountains also are gathered many pounds of the Senega (*Polygala Senega, L.*) and of the Virginia snake-root (*Aristolochia Serpent. L.*).

[I. 415-420.] In several excursions beyond the Alleghany we had occasion to observe the goodness and riotous fertility of the soil in its original and undisturbed character. The indigenous plants had a lusty, fat appearance, and they grow vastly stronger and to greater heights than is their habit elsewhere. In a new-made and unmanured garden there stood stalks of the common sun-flower, which were not less than twenty feet high, measured six inches in diameter, and were almost ligneous. The forests were of chestnut, beech, sassafras, tulip-trees or poplars, wild cherry, red maple, sugar maple, black walnut, hickory and its varieties, several sorts of oak, the sour gum, the liquid amber or sweet gum, and other trees known along the coast but here growing still finer and stronger. The forests are for the most part quite clear of undergrowth, which is equally fortunate for the hunter and the traveler. We were shown several trees described as of an unknown species, which appeared quite like the *Gleditsia triacanthos*, but had no thorns. Among the somewhat rarer trees are to be reckoned the papaws,* which chiefly grow in moist, rich, black soil, often called after them, "papaw soil." They are slender trees, with a smooth,

* Annona glabra. Gron. Virg. p. 83. Annona fructu lutescente lævi, &c. Catesby II. 85?

white bark, and beautifully leaved. Their smooth, egg-shaped fruit when over-ripe is not at all unpleasant, but by no means to every one's taste. The fruit has an odor of pineapples, but the bark and leaves a disagreeable, repulsive smell.

The sugar-maple is largely used by the people of these parts, because the carriage makes the customary sugar too dear for them. The tree grows more numerously here in the mountains than in the country nearer the coast; and one sees now and again in the woods gutters and troughs by means of which the sap is collected. The Indians also are known to make use of the sugar, and they boil it down on the spot. Others prepare it for sale at one and a half to two shillings Pensylv. the pound. It is brown, to be sure, and somewhat dirty and viscous, but by repeated refinings can be made good and agreeable.* A domestic tea is prepared from the leaves of the Red-root (*Ceanothus americana*), which is really not bad to drink, and may well take its place along with the inferior sorts of Bohea tea. Jonathan Plummer in Washington county on the Monongahela during the war prepared, himself, more than one thousand pounds of this tea, and sold it for seven and a half to ten Pensylv. shillings the pound. His method of preparation he kept secret; probably he dried the leaves on or in iron-ware over a slow fire. By better handling, more careful and cleanly, this tea could likely be made greatly more to the taste than it is. At the beginning of the war, what with general prohibitions and the enthusiastic patriotism, the importing of Chinese tea was for some time rendered difficult, and attempts were made everywhere to find substitutes in native growths; this shrub was found the most serviceable for the purpose, and its use is still continued in the back parts. Along the coast this patriotic tea was less known and demanded, but it will soon banish from many houses in the mountains the foreign tea which is now become cheaper. The use of tea is everywhere quite common.

Besides the elsewhere commonly known sorts of wild American grape-vines, there is found on the lower sandy banks of the Ohio a particular vine, of a squat, bushy stem, which bears small, round, black, and sweet berries, and has been observed nowhere else by me. Ginseng and both varieties of the snake-root occur in plenty and are industriously gathered. Of other medicinal plants there are found the *Collinsonia, Veronica virginica, Lobelia syphilitica, Aralia racemosa, Nudicaulis, Spiræa trifoliata, Actæa racemosa, Asclepias tuberosa, Aristolochia frutescens*, etc., and numberless others which I have cited elsewhere in a list of North American sanative remedies. What with our short stay at a season already advanced, the list of the remaining plants met with in this region would be too uncertain and insignificant to be given place here. We found only a few autumn plants in bloom, and those well known; but spring and summer in the

* More circumstantial accounts in this regard are to be found in P. Kalm's description of how sugar is made in North America from several sorts of trees. *Schwed. akad. Abhandl* XIII.

mountains and swamps of this western country would certainly afford a rich harvest, not only of rare plants but of those unknown. Among other things these forests would supply many new contributions to the order of mushrooms, of which uncommonly large specimens are sometimes found. I saw a white *Lycoperdon,* which weighed two and a quarter pounds and was in diameter a foot and eight inches.

Fruit is still a rarity, here as well as throughout the mountains. Near to the Fort [Fort Pitt] was an orchard, planted by the English garrison, but since wholly neglected, and this was the only one for perhaps a hundred miles around. In it were several varieties of the best tasting pears and apples. The common reproach that America is unable to produce as good fruit as Europe will certainly not apply to this region. In the woods around there are many wild bees, and on still, warm evenings one notices quite plainly a pleasant smell of honey.

[I, 436-444.] Of the medical knowledge of the Indians the opinion here and there in America is still very high.* The greater number, but not the well-informed, are convinced that the Indians, mysteriously skilled in many excellent remedies, carefully and jealously conceal them from the white Europeans. As always so here, people are deceived by the fancy that behind a veil of mystery there lie hidden great and powerful things. I see no reason to expect anything extraordinary or important, and I am almost certain that with the passage of time nothing will be brought to light, if as is the case, outright specifics are looked for and presumably infallible remedies. I do not therefore deny in any way that we must thank the northern half of America for sundry medicaments of value, and I apprehend as well that every new remedy must be to the patriotic American physician a treasured contribution to his domestic medical store. Most of the diseases for the healing of which the skill of the Indians is especially praised are simple, those in which nature may work actively and effect the most salutary changes. The variety of diseases among the Indians is not great and is confined chiefly to fevers and superficial injuries. The observers and panegyrists of the so much belauded Indian methods of therapy are commonly ignorant people who find things and circumstances wonderful because they can not offer explanations from general principles. The bodily constitution of an Indian hardened from youth by vehement exercise and by many difficult feats, demands and bears stronger medical excitants; and endowed originally with more elasticity, the physical system of an Indian often rids itself of a malady more promptly than that of a European, weaker and softer, is able to do. Their weaklings succumb in early youth, and those who survive all the hardships of a careless bringing-up owe it to their better constitution. The medicines of which they make

*This ungrounded but ancient misconception Dr. Benjamin Rush of Philadelphia some time ago undertook to combat. See his *Oration delivered February 4, 1774, before the American Philosophical Society, containing an enquiry into the natural history of Medicine among the Indians of North America.* A translation of this readable essay is to be found in *Samml. auserles. Abhandl. für Praktische Aertzte,* IV, 267.

use are few and simple, potent naturally or through the heaviness of the dose. A mild repeated purgative the Indian knows nothing of, and with him the effect must continue at least a day or maybe two days without stop. The most of their praised specifics are purgatives, perspiratives, or urine-stimulants, which they use not sparingly at the first approach of disease, and in this way often check the progress of the malady. But success does not always attend the treatment. Certainly, cases enough occur where the prescription is agreeable to the malady, and great benefit is suddenly experienced. Such instances are then noised abroad until the story of one and the same case becomes so varied and magnified that it is regarded as a daily and hourly occurrence, proof of the medical skill of the Indians, and so the craving after their mysteries is continually renewed and maintained. On the other hand, it is not remarked how many Indians fall unhappy sacrifices to their over-praised methods of cure. It is not observed that inflammatory fevers, small-pox, and other violent diseases ravage unspeakably among them, because their received methods can effect nothing in such cases, more than chance being necessary in the treatment. It is not observed how most of their chronic patients leave the world as a result of carelessness and unskilful handling. The Indian, when he falls ill, has recourse first to his roots and sacredly regarded herbs; he purges and sweats inordinately; fasts for days together; leaps into cold water, and submits to conjurings. Should he conquer his disease by rousing another—well and good, the medicines have done it. But should these first general means prove in vain, he knows not what to do further, uses promiscuously what strikes his fancy, and chance not being favorable to him, gives himself up to despair and his destiny. And what should lead us to think that a people as rude as the Indians, so heedless and without foresight, could be more fortunate in the discovery of specifics and more successful in applying them than nations which by their united efforts and assembled experiments have not yet learned how to work wonders? Or why are we to believe that the American soil is more beneficent than the rest of the earth in the bringing forth of specific means? The Indian lives truer to nature, if living wild and unconstrained may be so called. His way of life subjects him to a number of miseries; he suffers alternately the extremes of hunger and fullness, cold and heat, activity and relaxation, all which must work in his body powerful and mischievous changes. Is he exposed to fewer diseases merely because he has less knowledge and skill in the treatment of them? Civilized nations live softer and more meticulously, and bring upon themselves a greater number of maladies. But also are they not able to remove or alleviate a greater number of maladies, and to prolong the lives of weaklings, who elsewhere perish? But however true these things are, and however grounded the charge that the Indians jealously keep secret their specific and wonder-working remedies, the burden of accusation is in some measure lessened by their generous readiness to produce without reward their manifold roots, barks, and herbs for the behoof of those needing aid, even if they do not indicate whence they got them. They show at least no selfish and mercenary views, which are the

commonest motives among the no less numerous mystery-usurers of more civilized and enlightened nations. A speaking example of this has been just now afforded in Pensylvania and adjacent parts by a certain Martin, who boasted of possessing an all-powerful but secret cure for cancer. This aroused the credulity and won the confidence of his people so much the more because of the clever pretext that the discovery of the root (according to him the medicine came from a root) had been communicated to him in confidence by an old Indian at Pittsburg. Although shrewd and impartial physicians at Philadelphia found good reasons to doubt the highly praised worth of the remedy in genuine cases of cancer, the incredible number of imaginary or pretended cases of the disease, news of which came in from all parts, was astonishing. Never before had so much been heard of this malady. But it was certain, that fear and prepossession caused the anxious patient to fancy every obstinate or rooted impostume must be cancerous, and it was to be expected of the purveyor of the famous remedy that he, for his advantage, should claim everything to be cancer, and thus multiply his cures. However, it was by no means clearly made out that the medicine used by him was in reality taken from nothing but a root. But he sought to spread abroad this belief, and almost every year made a journey to Pittsburg, pretending to dig his mysterious root there from a particular hill on the Monongahela. Since I had come from Philadelphia, the attempt was made to search out this root for me, and I was shown the region whence it was believed he got the root; I found there in great quantity the *Sanguinaria canadensis* (blood-root), and the *Ranunculus sceleratus L.* Both roots have corrosive properties, and from many other circumstances too numerous to mention, it is highly probably that Martin made use of one or the other, if only to conceal other and more powerful constituents mixed in, for it is supposed that he added arsenic to his medicine.* Both plants are very common in other parts of America, and the blood-root is here and there used as a remedy for warts and in cleansing slight sores. It is to be wished that the physicians in America, who have already in other matters shown their patriotism in many noble efforts, may also have a patriotic eye to the completer knowlege and more general use of their native materia medica. It betrays an unpardonable indifference to their fatherland to see them making use almost wholly of foreign medicines, with which in large measure they might easily dispense, if they were willing to give their attention to home-products, informing themselves more exactly of the properties and uses of the stock of domestic medicines already known. They would then have the pleasure of showing their fellow-citizens how unreasonable it is to envy the poor Indians their reputed science, and they would be working usefully for the community and beneficently for the poor if they made it their business to further the employment of the manifold wealth afforded by nature in its precious gifts to them.

*After Martin's death, in 1784, Dr. Rush discovered and published in the second volume of the *Transact. of the Amer. Philos. Society*, that his cancer-powder consisted of white arsenic and a plant ingredient.

[I, 466.] We were introduced to still another domestic tea-plant, a variety of Solidago.* The leaves were gathered and dried over a slow fire. It was said that around Fort Littleton many 100 pounds of this Bohea-tea, as they call it, had been made as long as the Chinese was scarcer. Our hostess praised its good taste, but this was not conspicuous in what she brewed.

[II, 19-20.] The most important thing for me at Lancaster was the very agreeable acquaintance which I had the pleasure of making with the pastor of the Lutheran congregation there (and now Principal of the new college), Mr. **Heinrich Mühlenberg.** This excellent man, through his own diligence, has gained a very considerable knowledge of natural history and is unwearied in the study of the animals, plants, and minerals of his region. I have reason to regret that I came to know him so late and only for a brief space; his acquaintance would have been the more valuable to me, and his memory will be all the more cherished by me, since among native-born Americans he was the only amateur of natural science I got to know and could question on that subject. If among his countrymen there were many of his exemplary diligence and zeal after knowledge, America would soon know better its own productions, and natural history would be greatly enriched.

[I, 205.] Mr. Ettwein and Mr. Hübner are at present the ministers [Bethlehem]. The first was absent, but in Mr. Hübner I found an agreeable and amiable man, and a lover of botany, for which his profession allows him no time. The health of the community is cared for by Mr. Otto, at once physician, surgeon, and apothecary.

[I, 216.] For sundry observations on the medical properties of certain indigenous plants I must thank the experienced Mr. Otto. It is not generally known that the European juniper-tree grows easily from twigs stuck in the earth, after the manner of most cuttings from leaf-trees. In Mr. Otto's garden are several shrubs grown from the planted twig.

[I, 281-282.] We collected in this region [Wyoming] several varieties of mature seeds; but I must confess that considering the place and the season we found little that was new. Rattlesnake-root [*Polygala Senega*] grows here in quantity; also *Chenopodium anthelmin-*

*Solidago *suaveolens*: foliis lanceolato linearibus, integerrimis, acutis, subquinquenerviis, punctatis, glabris, tenerrime ciliatis—Virga aurea Americana, tarraconis facie & sapore, panicula speciosissima. *Pluk. alm.* p. 389, tab. 116, f. 6—A species similar to this grows about New York, and has a pleasant odor of anise, noticeable also in the plant here, but weaker; no doubt because it was already late in the season and it had suffered from the cold.

thicum; and *Cleome dodecandra,* which is praised as a vermifuge. A new species of the *Parnassia,* which I discovered about New York, grows here plentifully in swampy meadows. Among trees there was conspicuous a group of beautiful larches, called Tamarac; they use here a drink made from the bark, for swollen feet after fevers.

Maryland.

[I, 484-494.] Dr. Fisher at Fredericktown (also Apothecary and at the same time Sheriff) told the following remarkable story, and all those present confirmed it. A farmer, Jacob Sim, living eight miles from the town, was eleven years ago in the month of July bitten by a rattlesnake. Every year since, in the same month of July, he has fallen ill and feverish, the skin over his whole body becoming spotted blue and yellow. Carver observed something like this, and mentions that it happens commonly that after the bite of a rattlesnake not only the wounded part grows swollen, but the swelling extends gradually over the whole body, and makes it of as variegated a color as the snake; and further he speaks, as if certain, of an annual return of the symptoms shown in the first instance.* Everywhere I informed myself of the rattlesnake and the copper-belly (also called moccasin-snake), the bite of which is quite as poisonous. The different accounts given by the country people are of one accord, that these noxious beasts are much less numerous than they once were.

The general symptoms which follow the bite have been described at length by Carver and by others before him.† The shivering which immediately follows the wound may well be the effect of fright. Were the circumstances not so various, the efficacy of the poison, the activity of the wounded body, the conditions of the wound itself, and the season of the year, it could not be easily explained why so many are bitten without the least ill consequences, others recover after more or less significant symptoms, and others (but rarely) succumb on the spot. Dr. Garden saw a negro bitten in Carolina fall dead after fifteen minutes. And without such a diversity of circumstances it would be impossible to make anything of the great number of remedies, of all descriptions and often apparently trifling, which by one and another are recommended as most excellent for the snake-bite. It will not be surperfluous to set down here the sundry remedies for the snake-bite which in different parts of the country were pointed out to me and praised.

They are as follows: *Collinsonia canadensis* (Horse-weed), *Cunila mariana* (Penny-royal), *Cynoglossum virginicum, Hydrophyllum*

* Carver's *Travels,* English edit. p. 449, 450.

† Descriptions of the snake, of the symptoms and remedies, are to be found in Kalm's account of the rattle-snake, *Schwed. akad. abh.* XIV, XV; in Linnaeus, *Amoenitates acad.* Vol. II, Diss. XXII. *Radix. Senega;* and elsewhere.

canadense, Convolvulus purpureus (Purple Bindweed),* *Gentianae species* (Sweet Bazil), *Eryngium aquaticum, Sanicula canadensis* (Blacksnake-root), *Ribes nigrum, Hypoxis erecta.*† *Uvularia perfoliata, Pyrola maculata* (Pipsissiwa), *Phytolacca decandra* (Cancer-root), *Asarum canadense & virginicum* (coltsfoot), *Spiraea trifoliata* (Ipecac), *Actaea racemosa* (Blacksnake-root), *Sanguinaria canadensis* (Blood-root), *Thalictri species, Ranunculus repens & alii, Scrophularia marilandica, Polygala Senega* (Virginia Snake-root), *Hieracium venosum, Prenanthes alba* (Dr. Witt's Snake-root), *Serratura spicata & squarrosa, Solidago canadensis, Erigeri species* (Roberts' Plantain), *Aristolochia Serpentaria* (Rattlesnake-root), *Quercus nigra* (Black oak), *Juglans alba & nigra* (Black and white walnut), *Acer Negundo* (White ash)‡, *Veratrum luteum* (Rattlesnake-root), *Osmunda virginiana, Adiantum pedantum, Hypnum castrense.* Of these divers plants the roots mostly are pounded or ground and ordered to be laid on the wound; but of some, the leaves and bark also. Merely the inner bark of the white oak is laid on the previously scarified salt-rubbed wound. Of the black and white walnut the inner bark is to be beaten and the fibre twisted into a cord and this bound about the wounded limb above the bite. The bark of the white ash is burnt, the ashes made into a paste with vinegar and applied to the wound, and at the same time a decoction of the bark and the buds is to be drank. But among all the above-listed plants the Aristolochia serpentaria and Polygala Senega have especially held the general esteem; and to these must be added the Roberts' Plantain, which has been praised by several, particularly the worthy Dr. Otto at Bethlehem, from positive and often confirmed experience, having many times been of excellent use where signs of the poison taken up into the blood were already plainly manifest. This plant, little known as yet, grows well in hilly regions and is found in plenty about Bethlehem; it is raised there foresightedly in gardens, so as to be found in the night if occasion arises. Its leaves have a bitter, sharp, biting taste. They are applied, freshly crushed, to the wound and often renewed, and also a decoction made of them is copiously administered.

Another tried remedy was made known many years ago by Caesar, a Carolina negro, who was rewarded by the State of North Carolina with his freedom and a considerable sum of money. Having been many times tried, the especial efficacy of this remedy seemed to be admitted. It consists of the roots of the Hoarhound (*Marrubium album?*) and Plantain (*Plantago major vel lanceolata?*). These roots are mixed in equal parts, and three ounces of the mixture boiled in two quarts of water until reduced by half; the patient takes a third of this decoction three mornings together on an empty stomach. It reduces the symptoms and if continued effects a complete cure. If the fresh roots and simples are at hand they are pounded and ex-

* With the juice of this plant, according to Catesly, an Indian, having smeared his hands, took hold of a rattle-snake and fingered it without fear or injury.

† Aletris farinosa (Star-root).

‡ Panax quinquefolium (Ginseng).

pressed and a large spoonful of the juice given daily. Two spoonfuls are said to be sufficient for a cure. The herbs and roots, after expressing or boiling, are laid upon the wound, or as a substitute a leaf of tobacco steeped in rum. Both of these plants are of European origin, and grow in America as aliens, only in the settled parts and not in the wilds. How the negro got a knowledge of them is not certain; perhaps through some European—for both plants have been of old praised and used in the treatment of wounds, and, besides, one of them, the Hoarhound (*Marrub.*) has been greatly commended for the bite of noxious animals and mad-dogs.

Among all the remedies used exteriorly the most effective and reasonable are: the application of a ligature immediately above the wound; the sprinkling on of salt and pepper, gunpowder or tobacco; timely and repeated cupping; the searing of the wound, on the spot or as soon as ever it can be done: these remedies are now and again used with good results by the country people or by surgeons. And the fat of the rattlesnake is at times rubbed over the wound, but from this very little indeed should be expected.

[I, 545-547.] Several plants are grown here which farther to the north are scarcely seen. Cotton-wool (*Gossypium herbaceum*) and sweet potatoes (*Convolvulus Battatas*) are raised by each family sufficiently for its needs. The blacks raise 'Been-nuts' (*Arachis hypogaea*);* this is a pretty hardy growth, which at all events stands a few cold nights without hurt. The thin shells of the nuts, or more properly the husks, are broken, and the kernels planted towards the end of April in good, light soil, perhaps a span apart. They must then be diligently weeded, and when they begin to make a growth of stems, all the filaments or joints are covered with earth. After the blooming time the pistils and young seed-cases bury themselves in the ground and mature under the earth which is continually heaped upon them. The kernels have an oily taste, and roasted are like cacao. With this view the culture of them for general use has been long recommended in the Philosophical Transactions, and the advantages of making this domestic oil plainly enough pointed out, but without the desired result.

Virginia.

[II, 114-120.] The James River tobacco is reckoned the best sort which Virginia produces, and keeps its price pretty well unchanged at 6 Span. dollars the hundred. For smoking one finds the coarse

* This plant, with a few others of the same class, has the rare property of burying its seed-pods in the earth. The bloom appears far down on the stem, and inclines towards the earth, in which the pistil buries itself and matures round husks with 2—3 seeds, which are dug out for use. . . . It is believed to be originally an African plant which was brought to the American colonies, particularly the sugar colonies, by the negro slaves; the blacks are very fond of them and plant them industriously in the West Indies, in the little patches of land left for their use. . . In some parts they are called also "ground-nuts" and "ground-peas."

leaves of this tobacco vastly stronger and pleasanter than those of northern Virginia and Maryland, which are milder and lighter on the tongue. In Maryland the plants are let grow until they have 8-10-12 or more leaves before they are topp'd, that is, the tops are broken off so as to check the upward growth; but in this region the rule is to let the plants come to but 6, or at most 8 leaves, and it is thought that better tobacco is thus obtained. Here they raise much "Sweetscented Tobacco," which requires a good, light soil, and from its stronger quality should make particularly good snuff-tobacco. "Long-green Tobacco" has great, fat, long leaves, and does best on a strong soil. "Kitefoot" is an agreeable, lighter sort, and thrives on light, sandy soils. "Varinas" gets its name from Varina, the splendid estate of a Mr. Randolph on James River. It is said that the tobacco raised about Little Frederick, and called "Frederick," makes exceptionally good canaster. Other varieties of this plant are the Oronooko, Hudson, Thickjoint, Thickset, Shoestring, and many more, grown on divers kinds of soil, requiring different treatment, and only the planters themselves being able to distinguish between them.

Cotton (*Gossypium herbaceum*) is raised here and there, even in Maryland, but is far oftener seen in this more southern region. As yet none is exported, the people themselves using all they produce. This is an annual plant, and requires either good new land or land well dunged. The seed planted not all coming up, six or eight grains, towards the first of May, or earlier (when night-frosts are supposed to be past), are placed in little hills thrown up three to four feet apart. When these come up, the weaker plants are pulled out, so as to give the few remaining more nourishment. After the plant has reached a height of a foot or a foot and a half, earth must be newly heaped up about it, and all foul growth weeded out; and continuing to grow until there are four or five side-branches, the plants are broken off at the top, and when these side-branches have each put out four or five buds, the ends of the branches themselves are broken off, so as not to let them grow into long, barren stems; but in this item there is not everywhere (especially in Carolina) the same sort of careful attention. Moreover, the suckers, or young side-sprouts, must be nipped off. All this done the plants are let bloom, mature, and stand in the field until there is opportunity to take them in, which is often not until late in October. The blooms stand only two days, white on the first, yellow on the second, and then falling, after which comes a pod-fruit of the size of a walnut, and this finally opens. They have two varieties of this plant, one with a rough, and the other with a smooth seed, but there is no marked difference between the plants. Many people select carefully the smooth seed, and plant nothing else, the wool from it admitting of easier separation, by means of a hand-mill, between two wooden cylinders moving lightly the one over the other. Ants often damage the seed in the ground; and to keep them off, the seeds are mixed with ashes, luke-warm water poured over, and let stand overnight; in this way the seed swell a little, and the ants, it is said, do

not then attack them. The statement is made that even boiling-hot water does not greatly injure the sprouting faculty of these seeds, most of them coming up afterwards. Four pounds of raw seed give about one pound of wool. The wool, with the seed in, was formerly sold here and in North Carolina at 4-6-8 pence the pound.

Cushaws, a sort of gourds, are raised in Virginia in greater quantity and more generally than farther to the north; they have them black, yellow, and white, and use them for pot herbs. Perhaps in no other country are all kinds of gourds and melons so much used as in America; in the summer and autumn one can not see without amazement the great quantities of water and other melons brought to market at New York and Philadelphia, as well as eaten in the country or let lie in the fields. The plant recommends itself because, under the warm sun it does well without much attention or care. For whatever needs more than a little work without producing a great profit is not to the American taste. And so the pleasure of a fine garden is as yet scarcely known in Virginia. Perhaps a few of the most considerable families have made attempts, but commonly the people are satisfied with planting cabbage and turnips in an enclosed space, which goes by the name of a garden, and sticking among them a few uncomely flowers. The Virginians are so much the more at fault for neglecting a matter which might add to the enjoyment of a residence in the country and embellish their places, because their mild winters and warm summers must certainly give them many advantages. In the spring they have pease, beans, and other vegetables by the end of April, or at least early in May, 6 weeks or two months earlier than in New York. With the passage of time they will indeed learn to make a better use of the advantages of their country than is the case among them at present. Bignonias appear here as large, strong trees. The Melia Azedarach (Bead-tree) is frequently planted before the doors of houses, and this originally East Indian tree stands the winters right well. In sundry gardens there are tea-shrubs*, which succeed very well, and multiply easily. Besides, the Hibiscus Syriacus, the Babylonian willow, the box-tree, the myrtle, and one or two other plants, I was able at this season of the year to recognize by way of foreign growths which it had been attempted to domesticate. And nevertheless in the Virginia climate many useful and pleasant plants might be made to do extremely well; the domestic chestnut, the round-leaved ash, the European wallnut tree, the laurel-cherry tree, the pomegranate, the bay tree, and many others, would find a congenial home here.

Of indigenous plants not one was to be seen in bloom; evergreens

* Later information gives assurance that in several parts of the United States the culture of the tea-shrub has been gone about assiduously and with good hopes of success; chiefly for the following reasons: China, like the American states, has a surface extended to the west and northwest; and lies toward the Southern Ocean precisely as the United States towards the Atlantic; these two countries are in the same latitude, and in both (and nowhere else) is the ginseng indigenous, and this last circumstance especially argues so great a similarity of soil and climate as to permit the hope that the tea-shrub will very likely thrive under American skies, at least the experiment should be a tempting one. And it should not be forgotten that sugar-cane, the basis of the whole West India trade, was originally also a stranger from the East.

excepted, everything was leafless and hibernate; and yet we were not below the 37th degree of latitude, and thus 4 degrees to the south of Rome, round about which, even at this time of the year, one can pluck many sorts of flowers.

North Carolina.

[II, 176-177.] At Edenton we were for the first time regaled with the domestic tea universally known and beloved in North Carolina. This is made from the leaves of the Ilex cassine L., a tolerably high and beautiful tree or shrub, which growing abundantly in this sandy country is very ornamental with its evergreen leaves and red berries; more to the north and even farther inland it is rarer. It is here generally called **Japan**, but has this name in common with the South Sea tea-tree (Cassine peragua L.), which likewise grows on the Carolina coast, and is also generally esteemed for tea. The people here have a very high opinion of the good qualities of the Japan; they not only make use of it for breakfast instead of the common Bohea, but in almost every kind of sickness as well. Near to the coast, where the drinking water is not altogether pure, it is pretty generally the custom to boil the water with these leaves. Such an infusion is not unpleasant, if it is properly managed. There are those who in a slovenly manner chop up the fresh leaves, the twigs, the wood, and the bark all together; but this gives the water a repulsive taste. More careful housekeepers have the leaves, which may be gathered at any season of the year, culled out in a cleanly way, and dried in an iron kettle over a slow fire; they then pound them a little in a mortar, so as to keep them the better in glass bottles, but before putting them up they let them evaporate a while in the air. Prepared thus the taste betters by keeping, and not seldom a pound fetches one to one and a half Spanish dollars.

[II, 189-199.] We landed on the south side of Albemarle Sound, at the mouth of a small river, on the banks of which were assembled almost all of the different and beautiful ever-green plants which before we had met with only here and there, and dispersed. The sight of such a splendid green coppice in the depth of winter (it was the 31st of December), could not fail to be pleasing. These ever-greens are oftener to be found along the coast where the weather on the whole is milder than farther inland. The most conspicuous of those we found together were: Ilex Aquifolium (Holly). Ilex Cassine (Carolinian Holly or Japan). Prinos glaber (Winterberry).—Myrica cerifera (Candleberry-Myrtle).—Laurus Borbonia (Bay-tree). Bignonia sempervirens? (Yellow Jasmine). Smilax laurifolia—and other varieties of this species, which however do not hold their leaves so well as this. Prunus lusitanica (Evergreen-Baytree). Kalmia latifolia & angustifolia—and divers Andromedae, which keep their leaves longer here

than in the northern regions. Hopea tinctoria—used for dyeing yellow; the leaves are boiled half an hour, and the stuff soaked a quarter of an hour in the poured-off infusion, while hot; the color comes a fine straw-yellow; cotton takes it better than linen.—Juniperus virginiana (Red Cedar)—Cupressus thyoides (White Cedar), which often grows trunks 60-100 feet long, and 12-15 feet in circumference at the butt. But they reach this extraordinary height only in fat swamp-land, and where they are protected by other trees against violent winds which their shallow roots do not easily withstand.—Pinus Taeda, and other varieties of the species.

But besides these shrubs and trees, commending themselves to the eye by their enduring leaf, there are many others both useful and beautiful.—Cupressus disticha (Bald Cypress) is plentiful in these swamps. Its seeds fall at this time of the year; each scale of the seed-vessel has at the stud a little blister of fragrant, clear resin, of which no use is made. The wood is light and durable, and hence makes the best shingles and boards.—Callicarpa Americana (Sourbush) was still hanging full of its pale purple berries, which give a bright purple color to cotton stuffs.—A splendid tree, very useful in ship-building, is the **Evergreen oak,** Quercus Phellos sempervirens; Marshall, Amer. Grove —which begins to appear in this region, and grows continually more abundant towards the south. It is found also in the western country, on the Ohio and the Mississippi.—Other common trees, seen here and everywhere, I need not mention.—But the Melia Azedarach, the Bead or Paternoster tree, deserves notice. It is not indigenous, but thrives prodigiously and belongs among the rapid growing trees. They showed us one at Edenton, five years old and raised from the seed, which measured 9 inches in diameter, and had made a shoot or sprig 11 feet long, one year's growth. . . .

It is an advantage that now at midwinter one has almost the same prospect as that to be had in summer. That is to say, the sparse, thin grass which grows under the pines and on the dry sand turns as wilted and brown from the heat as it is now yellow and sapless from the cool winter nights. Everywhere the *Stipa avenacea L.* appeared to have the upper hand here; a rough grass which is eaten by cattle only in the spring when it is quite tender. On the dryer tracts there is absolutely no undergrowth or bush among the lofty pines and the trees standing by no means close, one can see far between them. But at every brook, or at any rather moister spot, there appear forthwith beautiful thickets of evergreen bush, called indiscriminately **laurels,** and such places consequently are known as laurel-swamps.

The *Yucca filamentosa L.* was now often to be seen in the woods. Its leaves can be cut into threads, thin and strong, of which the people make use for various household purposes.

[II, 216-226.] The *Iris verna L.*, called Violet here, the *Viola*

pedata and *palmata, Gomphrena flava, Lupinus perennis, Sanguinaria canadensis, Sarracenia lutea* and *purpurea. Cypripedium Calceolus, Azalea viscosa, Kalmia latifolia, angusifolia,* and *glauca,* and other plants seem, from the partial accounts I had, to belong among the first to appear in the spring, blooming towards the end of February or the beginning of March. The remarkable *Dionaea Muscipula L.* (Fly-trap) is at home in this region, but seems to be known to very few of the inhabitants. And besides it, there are many rare plants to reward the future investigator. . . .

In North and South Carolina, besides corn, a small kind of peas, called Indian peas, is very much raised. They yield heavily and in good years produce 40-50 for one. They plant them the end of April or the first of May and gather in October.—The people here distill a bad sort of brandy from potatoes (*Convolvulus Battatas L.*). . . .

That the greatest and most important part of the immense forests of this fore-country consist of pine, I have already several times mentioned. But it is precisely this wood which so much advantages the inhabitants, in which lies the compensation for their generally sterile soil; it is this that supplies them with excellent timber for building and other purposes, and with the opportunity for considerable gain from turpentine, tar, pitch, resin, and turpentine-oil. Therefore the pitch-pine is for North Carolina the tree most important and profitable. . . .

The **Pitch-pine,** here so-called, which is greatly preferred for turpentine because most resinous, has three very long needles in each case; the tree is of a tall, comely growth, and has long, bare boughs upward bent, which, commonly at the extreme end, bear out-standing tufts of needles. It appears more like *Pinus Palustris Mill.** than *Pinus Taeda L.,* since it grows here almost on barren, sandy soils, and is found oftener towards the coast than farther inland. This tree is not apparently weakened if turpentine is drawn from it many years together, and it is even thought that it merely grows the richer for these tappings, and used finally as light-wood yields the more in tar and pitch.

Together with it, but in greater plenty farther inland, grows the **Rosemary-Pine**† so-called, which has but two needles, and short ones, and yields vastly less turpentine than the other, nor for so long a period. The name **Yellow-Pine** is given in this country for the most part to the rosemary pine; but others hold that this is a particular variety of the pitch-pine, distinguished by a thinner, smoother bark, a softer, yellower wood, somewhat shorter needles, a straighter and less branching growth, and that the variety may be discerned quite young and makes a better house timber. Others again give the name

* *Pinus palustris* foliis ternis longissimis, Von Wangenheim's *Beyträge,* 73. Marshall's *Amer. Grove,* 100. The former says, it seems to contain little of resinous parts; the latter, that it is as resinous as any other kind.

† Pinus virginiana; Jersey-Pine; two leaved Pitch-pine—von Wangenheim's *Beyträge,* 74; Marshall's *Amer. Gr.,* 102.

yellow-pine only to very old pitch-pines, and believe that the tree makes no good timber until then.—It is difficult to get a clear notion of the many names, varieties, and sub-varieties of this region.

South Carolina.

[II, 247-252.] The lands of our host, being dryer and sandier, were not suitable for the culture of rice; therefore he occupies himself chiefly with **Indigo.**

They have sundry varieties of indigo; but in this flat, sandy region that which is best and most profitable is called, to distinguish it from the other sorts, "false Guatimala" or "true Bahama." It does well on soil of a moderate fertility, but if circumstances allow, new land is used or that previously dunged. A few prepare the land for indigo by green manuring, that is, they put on very thin seedings of oats or wheat, and when nearly ripe turn in horses and cattle to eat it off and firm it together.

The seed is planted after the first rainy weather in March or April, in rows 1½-2 ft. apart, the plant growing almost that high. When towards the beginning of July the lowermost leaves grow yellow and begin to fall, and the blooms commence opening, the plant is regarded as ripe for cutting, which is done a second time about the end of August, and if it is a warm fall a third cutting may be had towards the end of September. In order that the work of cutting may be done forehandedly, and not hurried on account of the quantity to be handled at any one time, fields are sown so as to come in at distinct intervals. The plant should not grow over-ripe. Indigo-fields require much attention, and must be diligently kept clean of caterpillars and weeds. Some 20 negroes are necessary to look after a plantation of 50 acres of indigo land and prepare the indigo, over and above what must be done in raising what they themselves and the planter's household need.

After rice, indigo is the chief staple of Carolina, and the yearly production and export reaches several hundred thousand pounds' weight. Its cultivation may and will increase, since there is no lack of suitable land, nor is any great capital necessary for a first beginning. At Charleston a pound at this time brings 3-5-7 shillings sterling; but neither in quality nor in price is the South Carolina indigo equal to that from the Mississippi, the West Indies, or South America. Besides that mentioned as most usually raised, the "false Guatimala," there is cultivated here and there in Carolina the **French or Hispaniola Indigo,** which however does not do so well, because more susceptible to cold, and on account of its deep roots demanding a fatter and richer soil. A third sort is called **Wild Indigo** (*Amorpha fruticosa L.*); an indigenous growth, regarding the quality of which opinion

is not yet settled, but from its easier cultivation and greater productivity this should be preferable to both the others.

[II, 270-287.] During these cold days of January and February, in the neighborhood of Charleston not an indigenous plant was to be seen in bloom; for in this climate spring does not really come before the middle of March or the beginning of April. But in sundry gardens the following European plants might be found greening and blooming:—

Alsine media—Lamium amplexicaule,—Leontodon Taraxacum,—Rumex crispus & acetosa,—Poa annua,—Vitica dioica, and *Sonchus arvensis*. Of garden flowers there were blooming at this time narcissuses and jonquils. Also the orange-trees, which are everywhere in the houses and in the open in gardens, seemed to be standing the severe weather pretty well; they were full of fruit and burgeons. But often they are frozen, and this is not seldom the case even to the south, at Pensacola in Florida. There it has been found at last by experience that the best means of guarding these trees against the injurious effect of great winter cold or northwest weather, is to take away the earth from their roots at the approach of winter, exposing the whole tree so that all its parts may be subject to the same temperature. Not one tree died that was handled thus; but those from which the earth had not been removed from the roots cracked and died. A palm tree, 7-8 feet high, standing out in a garden, suffered from this weather, and its leaves hung slack. Several other trees from warmer regions, such as *Croton sebiferum*, *Sapindus saponaria*, etc., which hitherto had withstood the cold well in the open, it was found would this time hardly escape damage. These and other tender plants which Carolina has in common with the West Indies, either naturally or from transplantation, thrive only on the sea-coast where, in comparison with the inland country, milder and more temperate weather prevails generally. . . .

Pleasant regions or diverting changes of prospect are not to be found about Charleston; the whole landscape is flat and sandy; tracts next the sea and the rivers are swampy. The greater part of the forecountry is taken up in pine-forest. Of these pines the following four varieties are the commonest.

1. The **Pitch-pine.*** It has 3 needles in each sheath, always assembled tuft-wise at the extreme end of the branch, the rest of the twig being bare if the tree is mature. Young trees, two and three years old, have needles 12-15 inches long, which stand upright at the top of the trunk and give it a peculiar and splendid appearance. If the trees are older the needles are from 7-9 inches long, and each needle shows 3 sharp, slightly dented edges; the outer side is rounded,

* Pinus palustris. Mill. Düroi, P't II, No. 8. v. Wangenheim, Beyträge, 73.

the two inner sides are flat, so that the 3 needles fit exactly together and form a long, thin cylinder; they are, for the rest, straight or only a little twist, the same breadth throughout, and but a little pointed at the end. The young trees grow no side-branches until they are 4-5 years old and 5-6 feet high, retaining until then their long, beautiful, upstanding tuft. The cones of this variety are 6-8 inches long and glisten with the plentiful resin they sweat out. Each scale has a rather wide eye, with a small, sharp point in the middle. The trunks grow tall and strong and their bark is smooth.

2. The **Loblolly-pine.*** It has likewise 3 needles in each sheath, and similar to those of the first, except that each needle is somewhat twisted. In young saplings the length of the needles is not more than 5-8 inches; in mature trees, not more than 4-6; but they are not, as with the pitch-pine, found only at the ends of the twigs, clothing them as a rule entirely. Also the branches stand up more and are shorter, whereas with the foregoing variety the half-naked boughs spread more out, and hang somewhat. Their cones are like the former, but shorter. The bark of the trunk is rough.

3. The **Bird's-nest pine.**—This name has been given it because all along the trunk a number of small, round, bushy sprouts break through the bark, and give the tree a strange, and at the first glance, distinguishing appearance. It is further peculiar for growing a great number of small twigs on the south side, and none or very few on the north side. There are two needles in each sheath, not more than 2-4 inches long, half-cylindrical, pointed, and slightly dented along the edges. The cones are oval, seldom more than 2 inches long, and each scale set with a small spine. The bark is very rough and broken.

4. The **Smooth-barked pine.**—It has 2 needles in each sheath, from 3-5 inches long, of a structure like the preceding. Their cones are also very small, and commonly quite smooth, but are to be distinguished by the very pleasant odor which is peculiar to them. The bark of the lower trunk is somewhat rough, but higher up grows smooth and white, retaining this characteristic and color, by which the tree may be known, throughout all the limbs, an appearance so unusual, especially in the younger trees and branches, that judging by it alone one would hardly suppose this to be a variety of pine.

These are the varieties of pine observed by me near about Charleston, to be easily and plainly recognized in loco by the descriptions given. But a special treatise would be necessary clearly and certainly to disintricate the sundry species and varieties of North American pines and firs, they, as it seems, being much affected by climatic and local conditions, and great confusion arising from the arbitrary, indeterminate names given them. Properly to rectify such confusions would require time and an observation of the trees in all situations and circumstances.

* Pinus Tæda. Linn. v. Wangenheim, *Beytr.*, 41.

In Carolina there are found almost all the varieties of oak which appear elsewhere in North America; but about Charleston and on the near-by islands the following are chiefly seen:

The Willow-leaved Oak. Quercus Phellos Linn., the swamp-oak with the willow-leaf. Catesb. I, 16.

It grows to be a strong and comely tree. It is not so common in South Carolina as in North Carolina; it is also found in the more northern provinces, but not beyond Pensylvania, where, however, it is smaller and holds its leaves only in mild winters, whereas here the leaves are kept as a rule the winter through, although some of them fall.

The Live-Oak. Quercus virginiana Mill. Quercus Phellos. β. foliis oblongatis non sinuatis, L.—Cat. I, 17.

This splendid oak grows strong, tall, and handsome. There is a certain difference as between the leaves of young or old trees and limbs, which often gives them the appearance of distinct varieties. The leaves of the young trees, and of the young limbs of older trees, are lance-shaped or oblong, and are set with little points at the edge. The other leaves are similar to these in shape, but blunted, the upper surface somewhat wrinkled, the under, downy or white, quite curled at the edges. The Catesbean figure is therefore not precisely exact, showing these leaves smooth, as it does, when they are not. This difference as between the leaves borne in mind, it will be found that the Linnean character of the Quercus Ilex will also apply at times to the young trees of this species of oak. In addition there are sundry other varieties; sub-varieties appear with leaves exactly similar as to shape, but smooth and shining on the surface, and beneath merely silver-colored, without the least down. The leaves are invariably strong and thick, and throughout the year keep green and vigorous. This oak is not only an ornament in the forest but furnishes the most excellent and suitable ship-timber. A ship built of it, and hence called the "Live-Oak," was 40 years and more at sea, and was several times new-planked. This oak is to be found most abundantly in Georgia, but there as well as in the Carolinas only on the sea-coast or not far from it; it grows 40-50 feet tall.

The Highland Willow Oak. Quercus Phellos humilis. γ. L., Catesb. I, 22.

This grows in dry places and is not rare here; but attains only a moderate size. The leaves are lance-shaped, but shorter than those of the first willow-oak, and are smooth on both surfaces; the leaves have several incuts and points.

The Water-Oak. Quercus uliginosa Wangenheim. Quercus folio non ferrato, in summitate quasi triangulo. Cat. I, 20.

This oak is pretty common in the southern provinces, as often to be met with as any other. It grows preferably indeed in low, moist, and good soil, but not exclusively, being found also in dry places. The

leaves approach in shape those of the common black oak, but are smaller, of a thicker structure, and keep green pretty well throughout the winter.

The other oaks found hereabouts are: The common black oak, the red oak, the red water-oak, the white, and the chestnut oak. Somewhat farther inland there is the low or dwarf oak, mentioned already more than once; but of all these none remains green over winter.

Besides the pines and oaks here remarked, the woods and open fields about Charleston are pranked with many other fine evergreen plants, which with temperate winter-weather keep up in some measure the charm of a perennial spring. I have remarked the following:

Ilex aquifolium, Ilex Dahoon, and Ilex Cassine L. All these sorts hold their leaves a lively green.

Olea Americana L. Ligustrum lauri folio, etc. Catesby I, 61. The leaves remain a bright green; as also

Prinos glaber L. Cassini vera floridanorum, etc. Catesb. II, 57.

Laurus indica and Borbonia L. Both, but especially the latter, keep very beautiful, their trunks pretty high and 2-3 feet through.

Kalmia latifolia, angustifolia, and prostrata L. The first of these lasts the best.

Lonicera sempervirens L. does not remain entirely green.

Smilax laurifolia and tamnoides L. lose a few of their leaves, but keep most of them and of a good appearance.

Bignonia sempervirens. Jasminum luteum, Catesb. I, 53, and another species, foliis conjugatis, continue very beautiful if protected in the woods, but otherwise not so well.

Magnolia grandiflora, tripelata, and glauca L. Both the latter continue only partly leaved, according to the nature of the winter; but the first is literally evergreen, and belongs among the trees of the first rank in this region, as well for its considerable growth (trunks 40-50 feet high, and more than 2 feet thick), as for its magnificent, fragrant blooms, and its continually green appearance.

Gordonia Lasianthus. Alcea floridana, Catesb. I, 44, here called Gardenia commonly—holds excellently well.

Hopea tinctoria. Arbor lauri folio. Cat. I, 54. Keeps its leaves green, but somewhat hanging, and shifts them only at the blooming season. The black cattle in the woods browse most on the leaves and

young twigs of this and the Olea americana, although both, and especially the latter, have a bitterish taste.

Pyrola maculata, Mitchella repens, Vinca lutea?, Cassine Peragua, Rhododendron maximum, Andromeda mariana, and Myrica cerifera, all keep very beautiful.

Cactus opuntia shrivels a little; but Yucca gloriosa, Yucca filamentosa, and Agave virginica continue full of sap.

Orange-trees, planted in the gardens and in the houses, are not originally indigenous, but they hold their leaves, although not very fresh. Twenty to thirty miles from the coast they let fall the most or all of their leaves in the winter as is the case with the lemon-tree even here. Orange-trees left to themselves and gone half-wild, arm themselves with long thorns, and are used here and there as hedges.

Among the evergreen plants here, belong also the Cabbage-palm (Areca oleracea L.) and the small dwarf-palm (Corypha minor L.?) both of which occur only along the coast.

Besides the plants noticed here, there are to be seen many others which keep their leaves a part of the winter, but more or less discolored or changed, and therefore not to be counted among those mentioned. With so fine a store of lasting plants, it will be very easy to have the pleasure of a continual green in the gardens, and to make famous winter-gardens. Many of the European annual plants keep green and in bloom throughout the winter, but in the heat of summer die away, at which time the indigenous annuals begin to shoot, and last through the hot season into September. But gardening is not very much in vogue and is generally left to ignorant negroes. Nor is it very long since all cabbages, pot-herbs, cauliflowers, and other garden-vegetables, were brought from the Bermuda islands to the Charleston market. A skilful English gardener, Mr. Squibb, had first to show the inhabitants that they could abundantly supply themselves if they would only make the necessary changes in the culture of vegetables, which the nature of the climate demanded. For these do not thrive so well throughout the summer as in the spring and the fall, and are to be kept in the open the winter through, green and growing. Root-plants, as radishes and yellow and white turnips, hold their own and grow even during the summer, but far less well than in the spring and the fall.

Of fruit-trees they have pears, apples, peaches, plums, and cherries. Apples and peaches, which are not particularly good, are ripe in June. These and other transplanted fruits mature so rapidly that they have not, it may be for that reason, so good a taste as in the northern country. Most of these fruits bloom twice a year; but seldom ripen the second time. The fig-tree bears 3 and 4 times, in May and June,

September and October. There are a few European olive-trees, which do well and yield heavily, but they have not yet learned how to conserve the fruit properly.

Wheat is sown in September and cut in June. Corn is planted in April and harvested in August.

Although the soil about Charleston, mainly a shell-sand, promises little fertility, there is no lack of remarkable instances showing the rapid progress of vegetation in the same. Warmth and moisture do what the thin soil of itself could not. In a garden outside the city there are pointed out many lemon trees, which at the siege of 1780 were cut down to the ground, and yet by February, 1784, had shot up twelve feet high and 3-4 inches thick. A Tallow-tree (Croton sebiferum L.) which had met the same fate, has grown since to 15 feet and more. The China-root, or Smilax China, here in one year runs out 40-50 feet, winding about the trunks and branches of trees. Often in the woods grape-vines are to be seen which strike their roots in the earth, indeed, but above are slung about the top of some high tree, otherwise swinging quite loose. A clinging shrub of this sort is the so-called "Supple Jack," of which I have seen neither leaves nor blooms. It grows a woody, pliant stem, one to two fingers thick and 40-50 feet long, which is often to be found hung from the end of a strong limb, and it is not easily to be guessed how it got there from the ground. I measured a few vines of the Bignonia sempervirens which were also of the thickness of a thumb, and in length 40 and 50 feet; these may be split without difficulty from end to end.

[II, 306-307.] In the middle of February, one small plant excepted,* not a bloom was to be found on James Island, although in other winters (mild as this was severe) one plant or another is at this season in bloom. I looked about to no purpose also for the "Cabbage-tree," which was once plentiful there, but now is as good as exterminated, because everywhere cut down during the war for fortifications and bulwarks. But there are a few still left on Morris and other neighboring islands, whither I had no occasion to go.

East Florida.

[II, 379-383.] All about the town [St. Augustine] the sandy soil was thickly set with a low, creeping palm (*Corypha minor L.?*) The

* *Houstonia* pusilla—*Radix* fibrosa, tenuis. *Caulis* pollicaris, acute tetragonus, setulis paucis (microscopio tantum observandis) scaber, simplex vel subramosus, terminatus ramis duobus et pedunculo intermedio, aut hoc tantum. *Folia* opposita, petiolata, ovata, basi apiceque acuta, glabriuscula, margine reflexo ciliata. *Petioli* longitudine fere foliorum, membrana laxa coadunati. *Pedunculus* terminalis, caula sæpe longior, tetragonus, erectus. *Flos* longe minor, quam Houstoniæ cæruleæ, erectus. *Calyx* parvus, basi hemisphæricus, quadrifidus; laciniis lanceolatis, acutis, erectis. *Corolla* infundibuliformis. Tubus calyce duplo et quod excurrit longior, medio incrassatus. Limbus tubo brevior, quadripartitus: laciniis ovatis, acutis. *Stamina* 4 in medio tubi corollæ: Antheræ flavæ. *Germen* compressum. Stigma bifidum. In habitus this is the *Houstonia cærulea*, and the bloom is so similar that I take it to be a variety of *Houstonia*, although I have not seen the fruit.

stems trailed along the ground, the tops very little raised above the sand, but with comely, upright-standing leaves. From every old root there sprouted may stems running in various directions, and striking out fresh roots. Whole fields were covered with this growth. Here and there appeared a few upstanding trunks, of the thickness of a man's leg; from the leaf, these seemed to be the same as the rest; but there being no blooms at this time, no precise determination could be made.

Near to the town there were to be seen a few trees of the fan-palm variety (*Borassus flabellifer L.*) The cabbage-tree or cabbage-palm (*Areca oleracea L.*) is likewise at home here, but about the town there are few of them left. They had been cut down to get the cabbage, the undeveloped, tender, white leaves at the top of the tree. This sort of palm grows tall. The edible part is brought into the town by negroes and sold at 6 pence to 1 shilling sterling.

In this southern region spring really begins hardly before the middle of March. A few trees and shrubs begin then to show leaves; the evergreen oaks, the cassio-berry, and other winter-green plants let fall at this time their last year's, but still green leaves, since the new are then developing.

In the woods and swampy places there were blooming at the time, among smaller plants: Orontium aquaticum, Drosera rotundifolia, Hypoxis erecta, Viola lanceolata, palmata, and primulifolia, Rhexia virginica, Hydrocotyle umbellata, Utricularia subulata and gibba, etc. All plants which are found as well in the provinces to the north, where however, they come out much later. Acorus calamus was plentiful in the swamps but not yet in bloom. On drier, sandy soils, and protected by palm-bush or garden fences were found blooming: Jatropha urens, Houstonia caerulea, Cistus canadensis, Veronica marilandica, Rhexia marilandica, Plantago virginica, Lobelia inflata, Antirrhinum canadense, Tradescantia virginica, Commelina communis, Oxalis stricta, Veronica serpillifolia, Verbena Aubletia, Argemone mexicana, Salvia urticifolia.

Among the smaller bush near the town several varieties of the species Andromeda, Vaccinium, the Myrica cerifera, Bignonia sempervirens, Rubus hispidus, Mespilus arbutifolia, etc., were beginning to develop blooms or were already blooming.

Prunus lusitanica, which is very common here, showed sporadic masculine and hybridous blooms. Xanthoxylum Clava Herculis grows here to strong, high trees. Ilex Cassine, Olea americana, Magnolia grandiflora, and other trees seen in Carolina, are more numerous here. Cactus Tuna is everywhere to be found.

In place of other fences about gardens and fields, the palmetto (*Yucca gloriosa*) is made use of here; the tops being cut off and set out along little ridges of earth take root easily and rapidly, grow tall

and thick, and with their stiff and prickly leaves make an impenetrable hedge. In addition, their beautiful blooms offer a splendid prospect to the eye, and their sweet, mucilaginous fruit is said to be a mild purgative. The orchards contain little besides lemon and orange trees. The latter, the sweet as well as the sour, are thought to be especially good, even better than the West Indian. But the sour are the most raised. The expressed juice is sold at 1 Spanish dollar the gallon. Of both sorts there are very strong and handsome trees, yielding annually 3-4-500 oranges. I saw no apple or pear trees, and only a few peach and plum trees.

The Florida star-anis tree (*Illicium floridanum L.*) is found in the neighborhood, but is not so plentiful as in West Florida.

In certain parts of Florida the culture of the *Sesamum orientale* has been attempted, and the seed found to be so heavy that a bushel, English measure, gave more than 25 pounds of oil, not only pleasant to the taste but vaulable because it does not easily grow rancid.

Bahama Islands.

[II, 422-435.] The character of the surface makes the working of the land somewhat difficult, and this may be the reason why so many plantations on the island lie deserted and so many houses are in ruins. The situation of this island [Providence], and the number of other islands still uninhabited but supplied with various kinds of timber, opened to the settlers other less tedious and more lucrative means of support than those to be had from the monotonous and toilsome life of a planter. However, I will mention here all the products which have been essayed here.

Coffee does excellently; several large orchards full of these trees are to be seen in and about the town [Nassau]; they are growing well, bearing heavily, and the beans are of the best taste. It is therefore a matter of surprise that such plantations are not more general, since the trees once set require little more attention. The sole cause of this neglect is likely that some years must pass before any profit is to be had from a plantation.

The **Suger-cane** thrives here as well as in other of the Bahamas where it has been tried. Several miles from the town a plantation had been begun, a distillery set up, and rum prepared, but the undertaker dying the work was given over. Of the quality and growth of the cane there can be no doubt, but the rocky nature of the soil makes it impossible to devote sufficiently large tracts to the culture; the work is therefore carried on at too great cost and difficulty, and the sugar can not be got out at the same rate of outlay as that holding in the other sugar islands near-by. On the other inhabited Bahama islands

the people raise just so much sugar as will supply their household necessities; they do no more than boil the juice of the cane to a thick syrup.

Indigo may be seen here and there growing in gardens, and about them, where the seed has fallen by chance and abundantly multiplied. The assertion is made by those who know, that the finest and best indigo is believed to come from the planters here; but large establishments for making it are not set up, on account of the character of the water here, and the lack of the quantity necessary for handling the indigo.

Cotton (*Gossypium arborcum L.*); the culture of this shrub is extending, not so much on Providence as on the other islands, experience having proved that this crop is one of the best and surest rewards of the planter's toil. It grows at all seasons, is not so dependent on rain as other plants, and takes quick and strong hold of the rocky soil.

Yams (*Dioscorea alata L.*) are raised everywhere in plenty, partly for family use, and also (but in no great bulk) for export to North America. The cut tubercles are once a year set in the ground, and increase extraordinarily.

Maize yields but one harvest a year, the character of the seasons not admitting of two plantings. It can not be put into the ground until the rainy season has begun, in June or July that is, and thus does not mature until November or December. So its growth is no faster here than on the American continent, where the planting is in May and the harvest in September. The dryness of the other months does not permit of a second seeding. This is the only grain produced on this island, and the quantity raised is by no means sufficient. America sends many cargoes hither to supply the lack.

The **Tamarind** (*Tamarindus indica L.*) has not become indigenous here, but is planted now and then. The trees are of a large and fine growth, with stout trunks and wide-spreading branches. The leaves of this tree, as is well known, fold up at night. The fruit is borne in quantity, pods 4-5 inches long, of a hard but brittle shell, brown in color; within, between tough, woody fibers, lies the very sour marrow which surrounds the seed. The shells are husked, and the inner parts set in earthen pots, between layers of brown sugar, and thus expedited.

As yet, very little of consequence has been done in wine-making; but it is said that the wild grapes growing here are very like the grapes of Madeira, and that some good wine has been expressed from them already.

Orange and lemon trees were at first transplanted by Europeans, but are now become quite native; almost all the known species and

varieties are to be met with here. The best crop of oranges is gathered about Christmas; the August crop does not yield such agreeable fruit. The sweet oranges bear properly but once a year; but the commoner sour oranges, and the bitter-sweet, yield ripe fruit mostly throughout the year, however it is plucked in the greatest quantity at the time mentioned. More rare are the "Soursoops," (*Pumpelmus, Citrus decumana L.*) The sort produced most abundantly, and less known in Europe, is *Limes**, which are in general not much bigger than a dove's egg, round, smooth, pale in color, with no smell, but of a very sour taste. These limes are exported in great quantity, from this and the other West Indian islands, to all of North America, where they are preferred greatly for punch, being juicier and sourer than lemons. Also, the expressed juice is sent off in casks. The trees bearing this fruit are but low and bushy and commonly bend beneath the weight. Little or no attention is given them, and in places where orchards have been set, there is to be seen now little but a wilderness of bush.

Ananas or Pine-apples. There are several varieties. That more generally raised here seems to be the Ananas aculentus fructu pyramidato, carne aurea T. Many acres of land are every year set with this excellent fruit; and many cargoes exported to all parts of America and even to Europe. They are cut for export when full matured but still green exteriorly. They first begin to ripen early in May, but very little is gathered for shipping before the end of May or the beginning of June. If well and drily packed on board ship, and so kept, they stand a voyage of four to six weeks and more. The ship by which I returned to England in June, had several thousand on board, and brought them well-preserved to London, where according to the size and beauty of the fruit the selling price was 4-6-8 shillings sterling the piece. The purchase price was 4-5 shillings a dozen. They are also conserved in sugar or brandy. Even the peelings of this fruit give to rum a very pleasant taste.

But as early as the beginning of May a schooner was clearing for America with a cargo of pine-apples and limes; at that time none of the earliest fruit was to be seen in the town; but this vessel had collected a cargo on the outlying islands, of the ripest fruit, or that nearest ripe, so as to be the first off to America. In exchange they take from North America and from Europe fresh and salted meats, butter, rice, corn, wheat, etc., utensils and clothing of every description.

From these several products and the work of the negroes those who own plantations draw considerable returns. The statement is made that only from pine-apples, yams, lemons, and coffee a plantation (large to be sure) has yielded a profit in one year of 2,300 pieces of eight.

Almost all the Bahama islands, such as are not mere barren ledges or keys so-called, are thickly overgrown with bush. Although most

* Citrus fructu sphærico-ovato punctato lævi minori acido. Brown, Nat. hist. of Jamaica, p. 308, n. 1. Malus aurantia fructu limonis pusillo acidissimo. Sloane, Voyage, II, p. 182.

of the trees of these islands are low and mean looking, there are found nevertheless on some of the larger islands strong, high trunks. Every man can fell wood as it pleases him and wherever he finds it; and this is a considerable source of gain to most of the families here resident, who keep their negroes constantly employed in this way, and send them hither and yon on the business. One is puzzled to see most of the white inhabitants of Providence living well and yet going about in idleness; but they live by the sweat of their slaves. Wood-cutting is gradually becoming more difficult and less lucrative. On the islands lying next Providence the best wood is always cut off, and thus there must be recourse to islands lying farther away, or the woods must be more deeply gone into; in either case the expedition of the wood felled is made more burdensome. Besides, those who have cut wood in this way, unless they own their vessels and boats, must lose in getting the wood to Providence for marketing; for the charge for freight is according to circumstances—⅓-½ of the wood.

Mahogany is what they look for and cut oftenest. But the Bahama islands yield no such large, thick trunks as do others of the West Indies, especially Cuba, whence boards of good length and breadth are fetched. The logs taken from Providence are better adapted for pillars, frames, and other less important work. The mahogany wood which is sent to Europe from this and the other West Indian islands does by no means come from one and the same variety of tree. Besides the *Swietenia Mahogany L.**, several kinds of Mimosa and perhaps other related trees are marketed under this name. Thus it happens that so many different sorts of mahogany wood are found in merchants' warehouses and in artists' work-rooms. An uncommon sort is called here, from its color and coarse wood-fibre, the "Horse-flesh Mahogany." Another kind, paler in color, is the so-called Madeira wood, but this also passes in Europe for mahogany. This is more easily workable, and comes from the *Cedrela odorata L.* In the woods near the town we were shown several species of trees, under the name of mahogany, but none of them was the Swietenia, which, it seems, is hardly to be found any longer in the neighborhood. In the West Indies much mahogany is used in ship-building. At the time, a **brig** was lying here on the stocks, of which the lower part was made entirely of mahogany. Mahogany lasts longer in the water than any other wood, and it is not readily attacked by worms; but from its heavier weight it may be used only for the lower part of ships, the upper part having to be of a lighter timber. Mahogany logs sink of themselves in salt water.

The next species of wood which is cut and exported in considerable quantity is **Brasiletto** (*Caesalpina brasilensis L.*)† Its trunks are small, unsightly, and for the most part crooked. This wood does not grow at all in Carolina, appearing first in the West Indies; it may possibly be found on the point of Florida as well. Catesby has been

* Catesby, *Carol.* II, p. 81, t. 81.

† Pseudo Santalum croceum. Catesb., *Carol.* II, t. 51.

responsible for the error, in his work which he calls *History of Carolina*, where so many subjects are included belonging to the Bahama Islands, but not always referred to their place of origin, and he has thus given occasion for regarding divers trees and plants as products of Carolina, when they are not. This wood, as is known, is used for dyeing.

Lignum Vitae: under this name there is exported at times *Guaiacum officinale*, at times *Guaiacum sanctum L.*, however, the last is greatly rarer than the first. The trees are not very high, and no thicker than a man's arm or leg. Most of this wood sent from here is, from its especial hardness, used in mechanical apparatus. A great traffic in it is particularly furthered by its use on ships where the pulleys and blocks for the rigging are made solely of this wood. Now and then gum is gathered from the trunks. The medicinal use of guaiaca wood is well known; but in addition the inner bark is employed here as an emetick. Some of it is bruised or beaten in a mortar, cold water is poured on, and the decoction let stand over-night. It has a strong effect, and is a customary household remedy in these parts. The shrub in bloom is of much beauty.

Logwood or Campeachy-wood (*Haematoxylon Campechianum L.*) is not originally indigenous here. But formerly many of the inhabitants going into Honduras Bay to cut this wood there, they brought seeds back with them and planted them here. This was done with good result here and there, and it is considered how so useful an article of trade may be further spread. The export has not yet become an important item.

White Cinnamon, Eluthera-bark, (Wild cinnamon), is produced by the Winterania Canella L. Catesb. II, t. 50, which grows in abundance on several islands, but especially on Eluthera; besides the quantity that goes to Europe, many tons of this are sent to Curaçao and other Dutch colonies, where cinnamon-water, perhaps also cinnamon-oil, is distilled from it.

Cascarilla Bark, *Croton Cascarilla L.* Catesb. II, t. 46, is likewise gathered on sundry of the islands.

Under the name of Squills (also Sea-Onions) a large onion similar to the Squilla, is collected on the sandy shore, dried, and sent to North America. The appearance of these is the same, and it is said their virtues are quite the same as those possessed by the ordinary *scilla maritima*. At this time the plant was not in flower, and I could not determine whether it is a species of the *Scilla*, or (more likely) a *Pancratium*.

[II, 483-494.] The greatest part of the plants here are everlasting and evergreen. Thus, if this group of islands is lacking in properly arable soil, easy to work, the appearance of things is none the less

pleasant and cheerful. The groves, cross cut by many paths and roads, form a beautiful evergreen garden, where bloom and fruit are continually alternating. Most of the indigenous plants bloom twice a year; particularly during and after the rainy season, in June and July, and in the temperate autumn months. The months of April and May, the time of my visit, are dry and unfruitful months, during which the flora here exhibits least its beauties and rarities.

Here shrubs and trees are in great disproportion to the more delicate, annual plants, of which there are but very few. Moreover, the leaves of most of these shrubs and trees are of a firmer, parchment-like nature, and their wood is dense and heavy. Although plants of this character are better adapted for withstanding great heat, nevertheless at the time of my visit, after a persistent drought, shrubs of firm, laurel-like foliage as well as those of a more delicate leafage, stood for the most part wilted, if not refreshed now and then by a dew at night.

Of the trees, either originally indigenous or transplanted, the following are to be set down, in addition to those already mentioned, as remarkable or useful.

The Papaw or Melon-tree, *Carica Papaya L.* (Trew: Ehret, Tab. VII), is planted for its fruit in gardens or about plantations, the fruit, cooked before it is full ripe, making a not unpleasant dish. It is believed here that if it is put with hard, tough meat, the same grows softer and more digestible. The little seeds have a sharp, aromatick taste. The trees are not very tall, sparsely leaved, and of a white, spongy wood.

The Guavas, *Psidium pyriferum L.* (Guiva, Trew: Ehret. t. 43), and *Psidium pomiferum L.*, are also transplantations; they are indigenous to Hispaniola. From their fruit confitures are made, as also from that of the Mammee, *Mammea americana L.*

The Avogado-tree, *Laurus Persea L.*—On a deserted plantation behind the town [Nassau] there are a few of these trees, large and handsome. The pear-shaped fruit, which ripens in September, is excellent of taste.

The Banana-tree, *Musa paradisiaca L.*, is grown abundantly in all gardens.

The common fig tree, *Ficus Carica L.*, bears three times a year, heavily, and good fruit, and deserves to be more raised, for the fruit of the indigenous fig, *Ficus benghalensis L.*, is small, dry, and uneatable. The pomegranate also yields well-tasting fruit. Among the transplantations belong also, the Paternoster-tree, *Melia Azedarach L.*, the soap-tree, *Sapindus Saponaria L.*; *Nerium Oleander*, and *Magnolia grandiflora L.* Further, the Silk-Cotton-Tree (*Bombax pentandrum L.*) the seed-case of which yields a very

fine, light brown wool. The tree is comely, large, and strong; the branches of the one I saw, no doubt the only one on the island, shaded a circuit of at least a hundred yards. The *Hura crepitans L.* (Trew: Ehret, t. 35) called the "Sand-box" from the use made of its seed-cases. The ripe, dry cases split with a loud clack; the unripe are bored through and used for strew-sand boxes, from their star-shaped openings being very well suited to the purpose. The seeds, like almonds in form and taste, are drastic. The fine growth of the tree makes it a favorite for shading walks, and the trunk yields excellent boards. *Aeschynomene grandiflora L.*, "Chicken-peas," a tree of very rapid and tall growth, recommends itself by its large, splendid blooms, and the seeds are good forage for poultry.

The Cashew or Acajou, *Anacardium occidentalis L.*, is met with on sundry plantations. The coco and the date-palm have both been transplanted; they thrive and bear much fruit. But the dates here are small and of a harsh taste.

Among the indigenous palms the inhabitants distinguish four different varieties, naming them, according to the use made of them, as follows:

"Great-Thatch" and

"Brittle-Thatch Palmetto"—the leaves of which are used in the roofs of their cabins.

"Silver-Thatch"—on account of the leaves being supplied below with a silver-colored down. The younger leaves are employed chiefly for making the rough nets and tackle used by the fishermen here. The top of the tree is eaten, as is also that of the

"Cabbage tree," or common cabbage palm. The soft stem of this palm is eaten by hogs.

Of the first [two?] I have seen neither blooms nor fruit. Probably they are varieties yet indeterminate. All of these grow by preference on the shore, making here and there pleasant little forests; but palms reach no great height here; at least one does not often find them more than 12-15 feet high.

To be counted among the indigenous edible fruits are: the several varieties of the custard-apple, *Annona glabra, palustris, triloba,* and *muticata L.*, the Jamaica or "Wild Cherries," *Malpighia glabra* and *urens*, which bear pleasant, sourish berries, not unlike the cherry. The sapadilla, *Achras sapota L.*, a small, round, milky fruit which, when well over-ripe is regarded by some as an especial delicacy and is used for tarts. The coco-plum, *Chrysobalanus Icaco L.* Saffrons, the fruit of a shrub with oval leaves having a brownish down beneath; in shape like cornel-berries, of a long, hard kernel, purple-colored or blue, and of a sweetish, sleek taste.

The "Pigeon-plums" (*Cerasus latiore folio, fructu racemosa purpurea majore.* Catesb. II, tab. 94) supply the wild pigeons, and the dry, yellowish fruit of the "Hog-plum tree" (*Spondias Mombin L.*) serves as food for the hogs.

The poisonous manchineel, (*Hippomane Mancinella L.*) occurs on Andros Island. The mangle-tree, *Rhizophora Mangle L.*, grows everywhere along the shores.

In the bush and the woods there are finally great numbers of varieties of splendid plants, of which at this season but few were in flower. Certain of them are peculiar to the Bahama islands, others are found throughout the West Indies, and in the warmer regions of the mainland. Not wishing to repeat all those names of plants mentioned in my description above, nor intending to give a complete list of the plants of Providence (out of the question both from the briefness of my stay and from other conditions as well), I will indicate only a few of the more common plants blooming in April and May:

Boerhaavia scandens.
Justicia spinosa.
Verbena lappulacea, curassavica and nodiflora.
Salvia serotina. The infusion is used in fevers.
Proserpinaca palustris.
Commelina communis.
Kyllingia monocephala.
Paspalum distichum.
Agrostis indica.
—— —— tenacissima, Jacquin, Ic. tab. 16. Collect. I, p. 85.
Catesbæa spinosa.
Petesia stipularis.
Cissus sicyoides.
—— —— trifoliata. (Almost smooth, and with no marked wings on the stalks. Caterpillars in the leaves.)
Fagara Pterota.
Rivina humilis and lævis.
Ilex cuneata.
Heliotropium parviflorum, curassavicum and gnaphalodes.
Tournefortia volubilis.
Convolvuli spec. (Salve-leaf.)
Ipomæa triloba, and other varieties.
Conocarpus erecta (Button-wood) and racemosa.
Psychotria asiatica.
Chiococca racemosa.
Scævola Lobelia.
Erithalis fruticosa.
Physalis curassavica.
Solanum verbascifolium, racemosum, bahamense.
Cordia Sebestena.
Ehretia trinifolia and Beureria.
Cestrum vespertinum.
Chrysophyllum Canito.
Hedera quinquefolia.
Illecebrum verniculatum.
Vinca lutea.
Plumeria rubra.
Echites umbellata, biflora and others.
. . . Arbor jasmini folio, floribus albis, fructu ovali, feminibus parvis nigris mucilagine involutis. Catesb. I, t. 59. Seligm. Vög. 3, t. 18. (Seven years' apple.)
Asclepias curassavica, and others.
Turnera ulmifolia.
Xylophylla latifolia.
Tillandsia polystachya, lingulata and others.
Tradescantia virginica.
Pancratium caribæum?
Orontium aquaticum.
Achras salicifolia.
Bursera gummifera. Terebinthus major, etc. Catesb. I, t. 30.
Amyris sylvatica (Torch or Lightwood)—toxifera (Poison-wood). Catesb. I, t. 40. Seligm. Vög. 2, t. 80.
Amyris Elemifera, and bijuga.
Ximenia inermis (Mastick-tree).
Coccoloba Uvifera.
Paullinia Seriana.
Cassytha filiformis.
Cassia emarginata, obtusifolia, occidentalis, biflora (Pock-root), ligustrina (Wild Senna. Purgative.), and others.
Poinciania pulcherrima.

Guilandina Bonducella (Nickers).
Melastoma discolor.
Banisteria angulosa.
Suriana maritima.
Euphorbia hyssopifolia?, heterophylla, and others.
Cactus Tuna.
Eugenia Pseudopsidium.
Sesuvium Portulacastrum.
Argemone mexicana.
Corchorus hirsutus.
Bignonia pentaphylla, and cærulea.
Lantana Camara and involucrata.
Capraria biflora.
Stemodia maritima.
Durantia Ellisia.
Cleome pentaphylla.
Sida crispa, and others.
Hibiscus tibiaceus.
Abrus precatorius.
Erythrina Corallodendron. Trew, t. 8.
Cytisus Cajan.
Hedysarum canescens.
Indigofera argentea.
Dolichos, sundry varieties.
Bidens nivea.
Ageratum conyzoides.
Amellus umbellatus?
Buphthalmum frutescens.
Serapias and Limodorum, sundry varieties.
Passiflora cuprea, rubra, Vespertilio, and others.
Helicteres jamaicensis, Jacquin.
Arum sagittæfolium.
Parthenium Hysterophorus.
Guettarda speciosa.
Croton Cascarilla, glabellum, argenteum.
Smilax, sundry varieties.
Juniperus bermudiana.
Andropogon repens. Gramen dactylon americanum cruciatum, barbadensibus nostratibus Dutch-grass dictum. Pluk., Phyt. tab. 189, fig. 7, and tab. 245, fig. 1.
Clusia rosea, flava.
Gouana domingensis.
Mimosa circinalis. Cat. II, t. 97, pernambucana, unguis cati, farnesiana, arborea, glauca, and others.
Pisonia aculeata.
Acrostichum aureum, polypodioides.
Asplenium rhizophyllum, marinum.
Polypodium phyllitidis, pubescens.
Adiantum clavatum.
Zamia pumila. Trew. t. 26.

ABBREVIATIONS.

1. Gr. virg.—Gronovius: Ed. 1762, description of Virginia plants collected by John Clayton.
2. Mill.—Philip Miller, various works on gardening and arboriculture.
3. Pluk. alm.—Leonard Plukenet: Almagestum.

ADDENDA.

The Lloyd Library can not resist making a brief recognition of the services Dr. Morrison has rendered to the recipients of the Lloyd Library publications. The foregoing Bulletin is of particular value, in that it carries so much useful and authoritative information concerning the early record of American drugs, medicines, and related subjects. Dr. Morrison has, in this painstaking contribution, served the interests of professional men in the sciences concerned, particularly in botany, medicine, and materia medica.

The complete book, *"Travels in the Confederation,"* by Dr. Johann David Schoepf, (see *Introduction*), published in two volumes in Erlangen, Germany, in 1788, has been translated into English by Dr. Morrison, and is now in press, as a subscription work, in two volumes, price, $5.00. It behooves the recipients of our Bulletins to address immediately Dr. Alfred J. Morrison, Hampden Sidney, Virginia, enclosing the subscription price of this invaluable work, which should be in every established library connected with the subjects embraced.

Let us again express to Dr. Morrison our grateful acknowledgments for his self-sacrificing efforts.

Respectfully,

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